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| 10/737,133 | 12/15/2003 | Hiroyuki Shinbata | 1232-5235 | 6320 |
| 27123 7590 11/14/2007 MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101 | | | EXAMINER SHIKHMAN, MAX | |
| | | | ART UNIT 2624 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|-------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/737,133 | Applicant(s) SHINBATA, HIROYUKI | |
| | Examiner Max Shikhman | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/16/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. Applicants' response to the last Office Action, filed 08/16/2007 has been entered and made of record.
2. Applicants' amendment has required new grounds of rejection. New grounds rejection are therefore presented in the Office Action.
3. Applicant's arguments have been fully considered but are moot in view of the new ground(s) of rejection. Therefore, this action is made final.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 8 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In Claim 8, "*program stored on a computer readable medium*" is not statutory.

Examiner advises, "a computer readable medium storing a computer program".

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-9 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

() Regarding Claims 1,7,8,9:

"the value being calculated from pixel values of the original image;" conflicts with *a value ... resulting from gray level conversion of the original image.* In the specification, the value results from the gray level converted image, not from the original image.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1,2,5-7 rejected under 35 U.S.C. 102(e) as being unpatentable by Otawara, PGPUB-DOCUMENT-NUMBER: 20030107681, "Contrast correcting circuit".

() Regarding Claims 1,7:

An image processing apparatus which executes image processing for an original image comprising:

defining means (Fig1: 14) for defining a gray level conversion curve (Fig2. [0048] Q1-Q16. Grayscale image results when $R=G=B$ in Fig 1.) to be used for gray level conversion on the basis of

a value ([0050] "S0/Sm") associated with a contrast ("the contrast conversion table Q1 when $S0/Sm=0$ ") of an image (Fig1: 100,101,102)

resulting from gray level conversion of the original image, ([0047] Fig1: Integrator 10 corresponds to integration in applicant's Formula 4 when $F(d,c)=1$, which is gray level conversion.)

the value ([0050] "S0/Sm") being calculated from pixel values of the original image; and (Fig1: 100,101,102)

([0047] "integrator 10 integrates the brightness levels of the input video signals")

gray level conversion means (18) for converting

([0051] "Using the conversion table, the RAM 18 corrects the contrasts of the R, G, and B video signals received from the input terminals 100 thru 102 on the basis of the table data received from the ROM 16")

a gray level of the image (100-102 when $R=G=B$) by using the gray level conversion curve (Fig2) defined by said defining means. (Fig1: 14)

() Regarding Claim 2:

The apparatus according to claim 1, wherein said defining means (Fig1: 14) defines the gray level conversion curve (Fig2) on the basis of a contrast improvement factor (Fig2: Q1-Q16) defined by the gray level conversion curve. (Fig2)

() Regarding Claim 5:

The apparatus according to claim 1, wherein said defining means (Fig1: 14) defines the gray level conversion curve (Fig2) on the basis of the contrast ([0109] "frequencies of the gray scales") of a specific image region of an object ([0112] "display region in the entire display screen that receives particular viewing attention") after gray level conversion. (110)

() Regarding Claim 6:

All of the limitations of claim 6 have been addressed with regard to claim 5.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3,4,8,9 rejected under 35 U.S.C. 103(a) as being unpatentable over Otawara, PG PUB-DOCUMENT-NUMBER: 20030107681 in view of Gonzalez, "Digital Image Processing, 2/E" (ISBN-10: 0201180758, Published: 11/09/2001).

() Regarding Claim 3:

Otawara discloses, *on a coordinate system whose abscissa represents an input pixel value and whose ordinate represents an output pixel value.* (Otawara Fig2)

Otawara discloses everything as described above except, *the defining means calculates the contrast improvement factor by fixing the contrast of the gray level conversion curve and translating the gray level conversion curve*

Gonzalez discloses translation with a fixed contrast. In Figure 3.6, each curve has a fixed contrast. To translate the curve use formula on Page 80, $s = c(r + \varepsilon)^{\gamma} - 0$ by changing 0 to another number b , $s = c(r + \varepsilon)^{\gamma} - b$. Gonzalez already translated the curve vertically by introducing ε into formula 3.2-3.

Gonzalez also discloses translation in Fig 3.18. Curve 3 is translated from curve 1 and with a different contrast. Curve 1 affects "Dark image" in Fig 3.15; curve 2 in fig 3.15, "Low-contrast image". As Gonzalez discloses in Fig 3.15 and Fig 3.18, for histogram equalization, it is desirable to translate the curves for similar shape histograms; Fig 3.15 "Dark image" and "Low-contrast image" have similar shape histogram. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Gonzalez's method, histogram translation, in the method of Otawara, translate curves in Otawara's Fig2, for images with similar shape histograms or similar grey levels. This is a simple procedure for contrast enhancement.

() Regarding Claim 4:

The apparatus according to claim 2, wherein to define the gray level conversion curve, the defining means calculates the contrast improvement factor by changing the

contrast of the gray level conversion curve (Otwara discloses this limitation with regard to claim 1, as shown in Otawara's Fig2)

on a coordinate system whose abscissa represents an input pixel value and whose ordinate represents an output pixel value.

(Otwara discloses this limitation with regard to claim 1, as shown in Fig2)

Otwara discloses everything as described above except curve translation.

Gonzalez discloses curve translation in Fig 3.18. Curve 3 is translated from curve 1 and with a different contrast. Curve 1 affects "Dark image" in Fig 3.15; curve 2 in fig 3.15, "Low-contrast image". As Gonzalez discloses in Fig 3.15 and Fig 3.18, for histogram equalization, it is desirable to translate the curves for similar shape histograms; Fig 3.15 "Dark image" and "Low-contrast image" have similar shape histogram. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Gonzalez's method, histogram translation, in the method of Otawara for images with similar shape histograms or similar grey levels. This is a simple procedure for contrast enhancement.

() Regarding Claim 8:

Otwara discloses, *a computer readable medium* (122,124).

Otwara discloses everything as described above except *an image processing program*.

Gonzalez discloses *an image processing program* on P29 Fig 1.24, "Image processing software". As Gonzalez says p29, software enables user to write code.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Gonzalez's method, image processing software, in Otawara's method, to allow user the flexibility of changing some parameters affecting contrast

The rest of the limitations of claim 8 are addressed with regard to claim 1.

() Regarding Claim 9:

All of the limitations of claim 9 have been address with regard to claims 1 and 8.

Allowable Subject Matter

12. Claim 10 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: Claim 10 is a formula, which is not disclosed in prior art, along with other limitations in the claim.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Max Shikhman whose telephone number is (571) 270-1669. The examiner can normally be reached on Monday-Friday 8:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINGGE WU can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2624

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Max Shikhman
Oct 28, 2007



JINGGE WU
SUPERVISORY PATENT EXAMINER